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## NEWS AND NOTES.

DR. JOHN H. MINNICK was elected President of the National Council of Teachers of Mathematics at the annual meeting at Atlantic City. Dr. Minnick has been unusually active in secondary school mathematics. He is now engaged in training high school teachers in mathematics in the University of Pennsylvania. Many readers will recall Dr. Minnick's Tests of Abilities in Geometry, a scientific monograph on the nature of the abilities which are involved in proving a proposition in geometry.

ANNOUNCEMENT has come to the MATHEMATICS TEACHER that the Harvard School of Education and Teachers College will offer summer courses in the teaching of mathematics which will consist both of theoretical discussions and of class room observation or demonstration. Daily observation in these demonstration classes proves most stimulating to teachers who are enrolled in professional courses. Mr. Ralph Beatley, head of mathematics in the Horace Mann School for Boys, will conduct the courses in Harvard. Mr. Raleigh Schorling, principal of the high school grades of The Lincoln School, and Mr. C. B. Walsh, principal of the Friends' Central School of Philadelphia, will conduct the courses in Teachers College.

DR. DAVID EUGENE SMITH will publish in early issues of the MATHEMATICS TEACHER a series of historical articles on problems which bear directly on high-school mathematics. He is now publishing a series of such articles in the *Bulletin of the American Mathematical Society*.

"WHY it is Impossible to Trisect an Angle or to Construct a Regular Polygon of Seven or Nine Sides by Ruler and Compasses" will be discussed in the May issue of the MATHEMATICS TEACHER by Professor L. E. Dickson, of the University of Chicago.

SOME school systems are employing directors or supervisors of mathematics for both their junior and senior high schools.

The Board of Education of Fort Wayne, Indiana, has recently appointed Fred H. Croninger director of mathematics in the city schools.

NOTICES of the following courses in mathematics, to be given during the summer session of 1921, have come to the MATHEMATICS TEACHER:

I. University of Chicago: first term, June 20–July 27; second term, July 28–Sept. 2.

Hermitian matrices of positive type, Professor E. H. Moore.

Determinants, Professor E. H. Moore.

Differential calculus, Professor H. E. Slaught.

Definite integrals, Professor H. E. Slaught.

Seminar on algebra and theory of numbers, Professor L. E. Dickson.

Solid analytic geometry, Professor L. E. Dickson.

Projective differential geometry, Professor E. J. Wilczynski.

College algebra, Professor E. J. Wilczynski.

Applications of vector analysis to electro-magnetism, Professor A. C. Lunn.

Units and dimensions, Professor A. C. Lunn.

Selected topics of mathematics, Professor J. W. A. Young.

Integral calculus, Professor J. W. A. Young.

Selected chapters of algebraic geometry, Professor S. Lefschetz.

Plane analytic geometry, Professor S. Lefschetz.

Functions of a real variable, Professor Henry Blumberg.

Plane trigonometry, Professor Henry Blumberg.

II. Columbia University: July 6–August 12th.

Elementary and intermediate algebra, Professor W. W. Rankin.

Plane geometry, Professor W. W. Rankin.

Logarithms and trigonometry, Professor G. W. Mullins and Drs. J. F. Ritt and K. W. Lamson.

Solid geometry, Dr. Jesse Douglas and Professor W. W. Rankin.

Algebra, Professor W. B. Fite and G. W. Mullins.

Analytical geometry, Professor L. P. Siceloff and Drs. K. W. Lamson and Jesse Douglas.

Calculus, Professor L. P. Siceloff and Dr. G. A. Pfeiffer.

General survey of modern mathematics, Professor Edward Kasner.

Theory of numbers, Dr. J. F. Ritt.

Mathematical introduction to Einstein's theory of relativity,  
Professor Edward Kasner.

Differential equations, Professor W. B. Fite.

Theory of functions of a real variable, Dr. G. A. Pfeiffer.

The teaching and supervision of arithmetic, Mr. J. R. Clark.

The methods of teaching mathematics in the junior high school,  
with demonstrations, Mr. Raleigh Schorling.

Theory and practice of teaching algebra in secondary schools,  
Mr. W. E. Breckenridge.

Demonstration class in plane geometry, Mr. C. B. Walsh.

Practicum in the teaching of mathematics, Professor C. B.  
Upton.

Commercial mathematics for teachers in high schools and busi-  
ness colleges, Mr. W. S. Schlauch.

A review of the subject-matter of junior high-school mathe-  
matics, Mr. C. B. Walsh.

The teaching of applied mathematics, Mr. W. E. Breckenridge.

Industrial mathematics, Mr. W. E. Breckenridge.

THE following subjects have been discussed at the Cleveland  
Mathematics Club during the current year:

Mathematics as a Training for Citizenship,

Correlation of Mathematics with Other Subjects,

Verbal Language Translated into Algebraic Symbols,

Developing the Simple Equation,

Intelligence Tests and Mathematics,

The Aims of Junior High-School Mathematics.

The Aims of Senior High-School Mathematics.

Supervision and Administration of Mathematics,

Factors underlying Failures in Mathematics.

The Cleveland Club is allied with the National Council of  
Teachers of Mathematics. D. W. Werremeyer, West Technical  
High School, is president, and Miss Anna T. Campbell, of the  
Central Junior High School, is secretary. (The average attend-  
ance at the monthly meetings has been more than 100.) (By  
Anna T. Campbell.)

IN the February, 1921, issue of *Educational Administration  
and Supervision* Mr. Percival M. Symonds discussed "Subject  
Matter Courses in Mathematics for the Professional Prepara-  
tion of Junior High-School Teachers." This article is of con-  
siderable interest, in that the qualifications for teachers of

junior high school mathematics will undoubtedly receive a great deal of attention in the near future. Among other things, Mr. Symonds says:

Our prospective junior high-school teacher of mathematics comes to us then with an equipment of traditional elementary school arithmetic and traditional high-school algebra and geometry. He is to be inspired with a new idea of mathematics, its relation to the rest of life, its place in the school, and the approved methods of teaching it. This new "atmosphere" the normal school must breathe from the start. What higher pure mathematics does the prospective junior high-school teacher need than that which he already has had in the high school? To answer this, ask what concepts and skills and information he needs to have strengthened or even first imparted. We may name (1) formula work, (2) graph work, (3) concept of the function, (4) trigonometry, (5) computation, (6) drawing, (7) properties of solids. For formula work, go to trigonometry; for graph work, go to analytical geometry; for the concept of the function, go to the calculus; for computation, go to logarithms; for drawing and the properties of solids, go to descriptive geometry. Here then is a basis for the work in pure mathematics in the junior high school. Following is the outline of the course suggested:

*First year:*

Second term: trigonometry and logarithms, with emphasis on the graph, formula, computation, and checking.

Third term: trigonometry, with emphasis on the formula and computation.

*Second year:*

First term: analytic geometry, with emphasis on the graphs, formula, and concept of the function.

Second term: the calculus, with emphasis on concept of the function, formula and the graph.

Third term: descriptive geometry, with emphasis on drawing and properties of solid bodies.

These courses are not meant to be exhaustive or complete treatments of the subject, but rather selections and adaptations out of the range of material. The work of these five terms is entirely purposive. The teaching has but one point in view: the creation of an appreciative attitude toward the elementary

content of the junior high-school curriculum by thorough grounding in the basic concepts. The instruction should bend every means to this end, and should daily stress the emphasis for which the several courses were planned. The method of attack and means of illustration and development should be models for the future teacher. Wherever possible, teaching principles should be noted.

Besides these advanced courses, however, the student needs a background of the applications of arithmetic. Hence is suggested for the

*Second year:*

Third term: applications of arithmetic to commercial, economic, and civil problems.

Parenthetically, it may be remarked that this arithmetic course should be social rather than merely arithmetical in content, teaching the facts of everyday life that have an arithmetical bearing.

*Third year:*

First term: history of mathematics.

Content: A chronological study of the history of mathematics, comparing each area with the present situation, sociologically considered.

Historical development of teaching of arithmetic, algebra, and geometry.

Recent movements and tendencies in the teaching of mathematics.

*Third year:*

Second and third terms: Curriculum course in junior high-school mathematics.

Content: Reasons for studying and teaching mathematics; the motive and emphasis of mathematics in the junior high school.

The course, responding to present social practice and studying the present course from the historical standpoint.

The approach to different topics, motivation from psychological and historical considerations.

Foreign secondary mathematics, methods of teaching, methods of study, drill, the problem, standards and tests, text books and reference books.